NRMSH 1(3) (2024) 189-196

New Researches of Management in Sport and Health

Journal homepage: sanad.iau.ir/journal/nrmsh

ORIGINAL ARTICLE

The Effectiveness of Mental Health Literacy on Social Problem-solving Ability with the Mediating role of Physical Literacy

Fateme Taheri[1], Vahid Rafiee Dehbidi[*2]

[1]*Department of Sports Psychology, Arsanjan Branch, Islamic Azad University, Arsanjan, Iran*

[2]*Department of Physical Education and Sports Sciences, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran*

K E Y W O R D S

Physical literacy;
Mental health literacy;
Social problem-solving ability

A B S T R A C T

The present study was designed and implemented with the porpouse of examining the mediating role of physical literacy in the relationship between mental health literacy and social problem-solving ability in 2022. The statistical population consisted of female students of Marvdasht Azad University who had chosen general physical education in 2022. Due to the limited statistical population, the entire statistical population (250 people) was selected as a sample and tested. Then, the subjects completed the physical literacy, mental health literacy, and social problem-solving ability questionnaires. The information obtained was analyzed and examined in two parts: 1- In the descriptive findings section, the mean and standard deviation and 2- In the inferential findings section, the hypotheses were analyzed using a causal-structural model test using the path analysis method. The research data were analyzed using two software SPSS version 24 and AMOS version 22. The results showed that the mental health literacy variable was able to predict the social problem-solving ability variable and the physical literacy variable directly (positively). The physical literacy variable was able to predict the social problem-solving ability variable directly (positively). The mental health literacy variable had a positive indirect effect on social problem-solving ability through the physical literacy variable as a mediator. It can be concluded that the physical literacy variable as a mediator showed a stronger role in predicting social problem-solving ability.

Introduction

Physical literacy has many anticipated benefits, including increased health care, improved physical and mental well-being, increased productivity in activities, increased skill levels, and greater participation in sports activities (America *et al*., 2014). Cultivating this aspect leads to understanding aspects of the physical environment, anticipating movement needs, and responding appropriately to them with high intelligence and focus. Thus, the individual moves towards health, which will promote and improve the individual's lifestyle throughout life (Whitehead 2001; Whitehead 2007; Whitehead, 2010). Therefore, quality physical literacy education can help students move forward and progress in their physical literacy path. Physical literacy, according to Whitehead (2007), is related to the ultimate goal of a quality physical education program, the basis and meaning of motivation, self-confidence, physical

[*]**Corresponding author**: Email address: vr1352@gmail.com
Received: 10 January 2024; Received in revised form: 20 April 2024; Accepted: 25 August 2024

competence, knowledge and understanding to value and take responsibility for maintaining purposeful physical activity throughout the life span. In general, physical literacy is an emerging strategy for explaining how to increase participation in physical activities throughout life (Whitehead 2013 and Whitehead, 2007). According to Ebola *et al*. (2018), on the other hand, literacy is a means of acquiring basic life skills for children, adolescents and adults that will enable them to overcome the challenges they face in life and represents a fundamental step in basic education, which is an essential means for effective participation in 21st century societies and economies. Literacy in the field of physical activity, sport and physical education also has its own meaning. In physical education, the word physical literacy is part of the discourse among coaches and, to some extent, among those who work with sports development. Sport is part of the lives of children and adolescents. Physical literacy is a practical approach to the participation and development of sports throughout the life of young people (Lundwall, 2015). Physical literacy is a relatively new term that has gained popularity worldwide in recent years and has attracted much research attention. Since the mid-20th century, there has been much debate about the definitions and goals of physical literacy (Chen, 2015).

In their study, Zarebi *et al*. (2019) focused on the role of theoretical knowledge and motor skills and stated that there is a significant relationship between motor skill competencies and physical activity levels, and a significant relationship was also found between physical education knowledge and physical activity. Therefore, in order to increase the level of physical activity and develop students' physical literacy, attention should be paid to their theoretical and cognitive knowledge as much as to their practical activity. Another component of individual competencies is the practical ability of students, in which the role of physical competence of physically literate students in participating in physical activities is emphasized. Chen (2015) emphasized the importance of motivation in his research and stated that one of the personality characteristics of physically literate students is a strong motivation for physical activity and also acknowledged that this motivation should be accompanied by knowledge, skills, interest in the environment and the purpose of action. Their practical activities play a fundamental role. The last component of individual competencies can be referred to as participation in physical activities of students. Physical activity is always a complementary part of people's lives and creates a situation in which people get away from life's problems and find an opportunity at regular intervals to gain happy and pleasant experiences. Despite this widespread prevalence of psychological disorders (50% of disorders begin at the age of 14), currently only one in five young people who need mental health services actually receive help. Untreated psychiatric problems and disorders in adolescents and young people are strong predictors of low occupational and professional achievements, poor interpersonal and family functioning, and reduced life expectancy (Peng *et al*., 2011). In contrast, increased public awareness of the need to diagnose a disorder early, known as mental health literacy (MHL), is associated with improved social functioning and better quality of life. In fact, youth mental health is now considered a major global health concern (Bally *et al*., 2020). Research shows that people are less aware of mental illness than they are of physical illness. Evidence also suggests that improved knowledge about mental health and mental disorders leads to earlier diagnosis of mental disorders, greater awareness of how to access help and treatment, and reduced symptoms of mental illness at the individual, social, and institutional levels, improved mental health outcomes, and increased use of psychological services (Raj Evans *et al*., 2011). Increased mental health literacy in a community not only benefits consumers and mental health professionals, but also increases the general well-being of the population through early intervention of prevention strategies and mental health promotion (Brenda *et al*., 2016). Youth

attitudes are also malleable and more easily changed than adults (Corrigan and Watson, 2007). This presents an opportunity to invest in promoting mental health literacy at this age, which has positive effects on promoting mental health literacy in young people - in particular in increasing knowledge and reducing stereotypes associated with problems in getting help (Corrigan & Watson, 2007). Students in and outside the academic environment are faced with numerous issues and problems, to solve them successfully they need to be equipped with problem-solving skills. This skill is a systematic, effortful and purposeful step-by-step process. Given the importance of this construct, much research has been conducted on it, but few studies have examined it as a criterion or dependent variable.

Materials and Methods

In general, the research method is descriptive-correlational in terms of the mediating role of mental health literacy in the relationship between mental health literacy and problem-solving ability among female students of Marvdasht Azad University in 2014-2015, with a total of 250 students. The present study was an applied research in terms of its purpose and in terms of the data collection method for testing hypotheses; it was a descriptive-correlational survey research. The information required for this study was to investigate the effectiveness of mental health literacy on social problem-solving ability with the mediating role of physical literacy in the student community of Marvdasht Azad University in 2014-2015, using research tools that included the 9-question Physical Literacy Questionnaire, Sam *et al*. (2016) with dimensions (self-esteem and self-confidence - self-expression and communication with others - understanding and knowledge); the short form of the Revised Social Problem Solving Questionnaire (SPSI-R); D'Zorilla *et al*., (2002), with 25 subscales and Hasson's (Positive Problem Orientation (PPO) Scale, Negative Problem Orientation (NPO) Scale, Rational Problem Solving (RPS), Impulsive/Reckless Style, Avoidant Style) and the Mental Health Literacy Questionnaire (MHLQ) Dias, Campos Almeida, and Balha (2018) with 29 dimensions (awareness of mental health problems - misconceptions about mental health problems - help seeking and first aid skills - self-help strategies) were collected. The information obtained was also analyzed and reviewed in two parts: 1- In the descriptive findings section, the mean and standard deviation (Table 1) and Kolmogorov-Smirnov test was used to examine the normality of the data (Table 2) and 2- In the inferential findings section, the hypotheses were analyzed using the causal-structural model test using the path analysis method. The research data were analyzed using two software SPSS version 24 and AMOS version 22.

Table 1. Mean and standard deviation of variables.

Variable	Mean	Standard deviation
Physical literacy	3.969	0.629
Social problem-solving ability	3.934	0.629
Mental health literacy	3.970	0.629

As can be seen in Figure 1, the mean of the physical literacy variable is 3.969, the mean of social problem-solving ability is 3.934, and the mean of students' mental health literacy is 3.970.

The Kolmogorov-Smirnov test was used to test normality. If the significance level is greater than the error value of 0.05, the assumption of normality is confirmed.

Using the Kolmogrov-Smirnov test, it was determined that the data distribution in this statistical sample was not normal.

Table 2. Normality test (Kolmogrov-Smirnov).

Variable	Z Statistic	Sig.	Result
Physical Literacy	0.234	0.076	Normal
Social Problem-Solving Ability	0.129	0.209	Normal
Mental Health Literacy	0.117	0.187	Normal

Results

In this section, the findings of the research hypothesis tests are presented. The analysis was conducted to explore the relationships between mental health literacy, physical literacy, and the ability to solve social problems. (Table 3) provides the results of the hypothesis testing using the path coefficient method. It shows significant relationships between mental health literacy and both the ability to solve social problems (0.491) and physical literacy (0.908), as well as a significant relationship between physical literacy and the ability to solve social problems (0.464). All these relationships were found to be significant at the 5% level. Additionally, (Table 4) presents the test results for the mediation analysis. It indicates that physical literacy plays a significant mediating role in the relationship between mental health literacy and the ability to solve social problems. The indirect relationship coefficient, calculated as $0.421 \times 0.464 = 0.908$, is greater than the direct relationship coefficient of 0.491, highlighting the significant effect of the mediator. The Sobel test statistic (9.409) also confirms the statistical significance of this mediation at the 5% level. These findings support the main hypothesis, concluding that physical literacy significantly mediates the relationship between mental health literacy and students' problem-solving ability.

Table 3. The result of the research hypothesis test.

Variable	The path coefficient/	P-value	path of the result at the 5% error level
Mental Health Literacy → Ability to Solve Social Problems	0.491	0.043	is a significant relationship
Mental health literacy → physical literacy	0.908	0.0001	is a significant relationship
Physical literacy → ability to solve social problem	0.464	0.049	is a significant relationship

Significant at the 5% level

Table 4. Test Results.

Path	Path Coefficient	Calculation	Sobel Statistics	P-Value	Result
Mental Health Literacy → Social Problem-Solving Ability	0.491	-	-	-	Direct Relationship
Mental Health Literacy → Physical Literacy → Social Problem-Solving Ability	0.421×0.464=0.908	Indirect Relationship	9.409	0.0001	Significant at 5% Level

Significant at the 5% level

According to the table above, the direct path coefficient is 0.491 and the path coefficient through the mediator variable is 0.421. Therefore, since the direct path coefficient is less than the path coefficient through the mediator variable, the mediator variable is effective. Also, since the Sobel test Z statistic is greater than 1.96, the hypothesis is confirmed. Therefore, the main hypothesis is accepted and physical literacy plays a significant mediating role in the relationship between mental health literacy and students' problem-solving ability.

Discussion and conclusions

The results of this study were consistent with Rahmanpour's research in 1402 and with the results of the research findings of Jaber and Alizadeh in 1398 by presenting mediating variables.

Regarding the research criterion variable and the explanation of the research findings that mental health literacy affects students' ability to solve social problems both directly and through physical literacy, some points about the theoretical foundations related to these findings are presented in the present study. In a study, Castelli (2014) showed that the level of mental health literacy of individuals is related to their mental health status, especially depression, and having a higher level of mental health literacy is associated with better recovery from psychological harm. Existing evidence shows that better knowledge about mental health, such as identifying the symptoms of mental disorders and better awareness of how to access help and treatment, and de-stigmatizing mental illness by creating an appropriate image of the patient and its symptoms, whether at the individual, social, and institutional levels, leads to better identification of mental disorders, improvement of the disease and its consequences, and better and easier access to mental health (Rush *et al*., 2011). Mental health literacy among people in any society reflects their level of awareness of psychiatric illnesses and their understanding of the need to see a specialist and receive the necessary treatment (Haijin, 2016). Studies that have been conducted to examine mental health literacy have often identified factors such as knowledge about the causes of mental illnesses and their treatment methods, awareness of the symptoms of mental illness and the person suffering from it, the ability to distinguish between mental illnesses, and awareness of sources of access to information about mental illness as subsets of mental health literacy (Jorem *et al*., 1997; Wang and He, 2012). Demographic factors such as gender, employment status, level of education, age, and economic status or income seem to be related to health literacy and mental health literacy. Of course, these factors can have different effects on health literacy and mental health literacy in different societies and cultures. Some studies have shown that female gender is associated with greater mental health literacy (Wang *et al*., 2012; Cotton *et al*., 2006; Koyama *et al*., 2009). For example: The study by Cotton *et al*. showed that men have lower health literacy than women and on the other hand, the amount of alcohol consumption among them is higher, which can be considered both as a background factor in preventing alcohol consumption and as a kind of consequence. Being employed is positively associated with mental health literacy according to the research of Peng *et al*. (2011). Also, higher education (Peng *et al*., 2011; Wang *et al*., 2013), and being young (Wang *et al*., 2012; Peng *et al*., 2011; Frohnham *et al*., 2014) are positively associated with higher mental health literacy. There are many studies that have examined the role of demographic factors in the level of health literacy because paying attention to these factors is important because it can guide health officials in designing and implementing programs to increase health literacy. The subject of problem solving and various approaches and methodologies for problem solving are studied and investigated in various sciences, including the interdisciplinary science of creativity (creativity and innovation).

Problem solving, which is considered the most complex part of any intellectual operation, is defined as an important cognitive process that requires the integration and control of a series of basic and ordinary skills. Problem solving occurs when a living being or an artificial intelligence system does not know which path to take to get from one situation to another. This is also part of a larger problem process, of which problem finding and problem formulation are part. Simply put, the problem solving process involves recognizing the problem, using prior knowledge to create new concepts about the problem, and using effective strategies to solve the problem

(Chenille, 2011). When an individual is faced with a problem or issue, normal reactions that are the result of association of meanings or conditioned reflexes cannot help the individual to solve the problem; at this time, the individual must take help from his past experiences and solve the problem using his knowledge. He remembers and revises what he has learned related to the issue in the past. Based on his/her own information and skills, he/she extracts appropriate solutions by discovering how they are related to each other and to the problem and proceeds to solve the problem. Problem solving is a form of higher-level cognitive activity and a problem occurs when there is a gap between the desired state and the existing state. The turning point in problem solving is searching the problem space in order to move from the initial state to the goal state. Problem solving is finding a set of solutions to overcome obstacles and reach the goal state (Shariatmadari, 2005). In general, applying problem solving models to problems that are major and minor, positive and negative, general and specific, will be equally successful. We emphasize this broad concept because problems are usually considered as something major, negative, disgusting, and bad. Such an incomplete understanding inappropriately limits the application of adaptive social skills presented in this discussion. Solving positive problems is as important as solving negative problems. Understanding that problems can be positive helps to eliminate the abnormal state that is felt when having a problem. Eliminating negative value judgments may help a person accept the problem. Feelings of guilt and shame, and the defensiveness and denial that these judgments create, are reduced. Accepting the existence of problems is an important precursor to effective problem solving. Everyone is constantly faced with various problems and deciding how to deal with them. Due to the complex and changing nature of today's societies, the focus on small and large problems and issues has increased. Most of the time, the process of solving everyday problems is so automatic that people are not aware of how to do them exactly. However, it should be noted that without the ability to identify problems and arrive at workable solutions, people's daily lives will fall apart. Problem solving involves emotional, cognitive, and behavioral domains. People who have greater problem-solving ability are better able to cope with life's stresses and problems, and those who learn to solve problems are likely to cope effectively with stress, and the lack of problem-solving ability is associated with more psychological and social problems. Problem-solving is an obvious cognitive behavioral process that: 1. Provides potentially effective responses to a difficult situation. 2. Increases the likelihood of selecting the most effective response from among multiple responses. People who have high problem-solving ability are more likely to be successful in dealing effectively with a wide range of situations, and the person's orientation towards the situation has a decisive and decisive effect on the way he responds. The orientation that encourages problem-solving behavior includes the person's readiness or attitude to assume that difficult situations are part of normal life and can therefore be handled. Likewise, whenever a problematic situation occurs, they can be identified and prevent the tendency to immediately respond to the first impulse, and the person's expectation of his ability to control the environment greatly increases his success in trying to deal with the problems that arise.

However, in the context of the influencing and mediating role of the physical literacy factor, which itself can also play the role of an independent and predictive variable according to previous research, how is it explained in relation to the findings of this study? Physical literacy should be considered as an umbrella concept that absorbs the knowledge, skills, understanding, and values related to the responsibility of performing purposeful physical activities and human movement throughout life, regardless of physical or mental limitations. For this reason, Dudley (2015) presents a model that considers the four aforementioned elements for physical literacy. These

main elements include motor competencies, rules, tactics, and strategies of movement, motivational and behavioral skills of movement, and personal and social characteristics of movement. Jones *et al*. (2018) have presented a model of physical literacy consisting of five dimensions: intrapersonal, extrapersonal, organizational, social, and political. This model shows that the aforementioned elements are effective in promoting and adopting physical literacy. Physical literacy is different from sport. Sport and physical literacy are both subsets of physical education activities. Exercise is performed to improve or maintain fitness levels and should be structured, planned, repetitive and purposeful (Whitehead, 2001). However, physical literacy is much broader than physical education. In fact, physical literacy is one of the basic goals and main focus of physical education and physical training, and there is a close relationship between physical activity, physical education and physical literacy (Whitehead, 2010 and Whitehead, 2013). Lundahl (2015) describes physical literacy as a priority that both education and sport can contribute to and as a bridge that bridges the gap between education and sport. Literacy is generally understood in terms of four main components: knowledge and understanding, content comprehension, thinking and using critical and creative thinking skills in tasks and processes, communication and transferring information through different ways and forms, and application of skills and using knowledge and skills to establish intra- and inter-personal communication in different contexts (Mary, 2007). Literacy also has its own meaning in the field of physical activities, sport and physical education.

Conflict of interests

There is no conflict of interest between the authors of the article.

References

Abula K, Gröpel P, Chen K, Beckmann J (2018) Does knowledge of physical activity recommendations increase physical activity among Chinese college students? Empirical investigations based on the transtheoretical model. Journal of Sport and Health Science. 7(1), 77-82.

America Shape, Couturier L, Chepko S, Holt SA (2014) National standards & grade-level outcomes for K-12 physical education. Champaign: Human Kinetics.

Balyi I, Way R, Higgs C (2020) Physical literacy in long-term athlete development (pp. 33–48). Champaign, IL: Human Kinetics. Retrieved July 9, 2020, from http://dx.doi.org/10.5040/9781492596318.ch003

Bayrami M, Hashemi Nosratabad T, Alizadeh Goradal J, Alizadeh H (2012) Predicting social problem-solving ability based on cognitive styles in the student population. Social Cognition. 1(1), 77-84.

Boyle FM, Donald M, Dean JH, Conrad S, Mutch AJ (2007) Mental health promotion and nonprofit health organizations. Health & Social Care in the Community. 15(6), 553-560.

Castelli DM, Centeio EE, Beighle AE, Carson RL, Nicksic HM (2014) Physical literacy and comprehensive school physical activity programs. Preventive Medicine. 66, 95-100.

Chen A (2015) Operationalizing physical literacy for learners: Embodying the motivation to move. Journal of Sport and Health Science. 4(2), 125-131.

Chenail R J (2011) Learning to appraise the quality of qualitative research articles: A contextualized learning object for constructing knowledge. The Qualitative Report. 16(1), 236-248. Retrieved from https://nsuworks.nova.edu/tqr/vol16/iss1/14

Corrigan P, Watson A (2007) How children stigmatize people with mental illness.

International Journal of Social Psychiatry. 53, 526-546.

Cotton SM, Wright A, Harris MG, Jorm AF, McGorry PD (2006) Influence of gender on mental health literacy in young Australians. Australian and New Zealand Journal of Psychiatry. 40(9), 790-797.

Furnham A, Annis J, Cleridou K (2014) Gender differences in the mental health literacy of young people. International Journal of Adolescent Medicine and Health. 26(2), 283-292.

Hyejin J (2016) Sue McLeodExpanding a measure of mental health literacy: Development and validation of a multicomponent mental health literacy measure. Psychiatry Research. 243, 278-282.

Jorm AF, Korten AE., Jacomb PA, Christensen H, Rodgers B, Pollitt P (1997) Mental health literacy: A survey of the public's ability to recognize mental disorders and their belief about the effectiveness of treatment. Medical Journal of Australia. 166, 182–186.

Koyama T, Tachimori H, Sawamura K, Koyama A, Naganuma Y, Makino H, Takeshima T (2009) Mental health literacy of autism spectrum disorders in the Japanese general population. Social Psychiatry and Psychiatric Epidemiology. 44(8), 651-657.

Lundvall S (2015) Physical literacy in the field of physical education–A challenge and a possibility. Journal of Sport and Health Science. 4(2), 113-118.

Murray S, Rudd R, Kirsch I, Yamamoto K (2007) Health literacy in Canada: Initial results from the International Adult Literacy and Skills Survey. Ottawa, Ontario: Canadian Council on Learning. 12, 225-234.

Peng Y, Wang XL, Li PF., Liu K (2011) Mental health literacy in Changsha, China. Shanghai Archives of Psychiatry 23(6), 25-30.

Rahmanpour E (1402) Investigating the components of health literacy on mental health and prevention of social harms of students. Psychology, Social Sciences and Educational Sciences. 7(3), 1-9.

Reavley NJ, Jorm AF (2011) National survey of mental health literacy and stigma. Canberra: Department of Health and Ageing. Retrieved from http://pmhg.unimelb.edu.au/research_settings/general_community/?a=636496

Rüsch N, Evans-Lacko SE, Henderson C, Flach C, Thornicroft G (2011) Knowledge and attitudes as predictors of intentions to seek help for and disclose a mental illness. Psychiatric Services. 62(6), 675-678.

Shariatmadari A (2005) Principles of Education. Tehran: Amirkabir.

Wang JY, He YL (2012) Progress in mental health literacy. Journal of Neuroscience and Mental Health. 13(1), 98-101.

Whitehead M (2001) The concept of physical literacy. European Journal of Physical Education. 6(2), 127-138.

Whitehead M (2007) Physical literacy and its importance to every individual. Dublin, Ireland: National Disability Association Ireland.

Whitehead M (2010) Aims of PE. In Learning to Teach Physical Education in the Secondary School. pp. 37-47. Routledge.

Wilson BH (2016) Undergraduate mental health nursing education in Australia: More than Mental Health First Aid. Collegian. 22(4), 433-438.

Zarebi A, Jafari H, Hosseinian A, Abdollahi A (2021) Psychometric properties of the Persian version of the Mental Health Literacy Questionnaire (MHLQ) among students of Shahrood University in 2019. Quarterly Journal of Research in Psychological Health. 14(4), 85-103.